

**REMARKS**

With this response, claim 1 has been amended, and claims 3-5 have been cancelled without prejudice or disclaimer. New claims 6 to 37 have been added. Upon entry of the present amendment, claims 1, 2, and 6-37 are pending. Reconsideration of this Application is requested. No new matter has been added by the present response.

Support for the amendment to claim 1 can be found in the specification at, for example, page 16, lines 1-15; page 17, lines 3-12 and 21-24; page 18, lines 11-17; page 20, line 13 to page 22, line 15; and at page 26, line 3, and in original claim 3.

Claims 2 has been amended to conform with the recitation of amended claim 1.

Support for the newly presented claims can be found, for example, in cancelled claims 3-5. Additional support for the new claims can be found throughout the specification at, *e.g.*, the sections of the specification presented in the table below.

New Claim	Support
6	Page 17, line 9, and Examples 4 and 5.
7	Page 11, lines 19-20, page 17, line 15; and page 22, lines 9-13.
8	Page 17, lines 17-21.
9	Page 20, lines 14-16.
10	Page 17, lines 26-27.
11	Page 4, line 10.
12	Page 17, lines 21-24.
13, 14	Page 1, lines 17-22; page 2, line 21; page 10, line 4; page 13, lines 9 and 12, 15 and 27; page 14, lines 3, 13, 19 and 22; page 15, lines 2-4; page 27, lines 22-25; page 28, lines 10-11; page 29, lines 5-7, and page 31, lines 14-15..
15	Page 26, lines 2 to 5.
16	Page 24, lines 12-15.
17	Page 24, lines 12-13.
18	Page 11, lines 7 to 12; page 16, lines 1-3; page 17, lines 3-5, and 7-11; page

	18, lines 9-17; page 19, lines 7-12; page 26, lines 2-4; Example 1 (pages 26 to 28). The support for step “(c)” can be found, for example, at page 16, lines 13 to 15, and Figures 1b, 3 and 4.
19	Page 22, lines 1-2.
20	Figures 1b, 3 and 4
21	Original claim 3
22	Page 22, lines 9-15
23	Page 22, lines 3-6
24	Original claim 3, page 20-24.
25, 26	Page 17, line 9, and Examples 4 and 5.
27, 28	Page 11, lines 19-20, page 17, line 15; and page 22, lines 9-13.
29, 30	Example 1, page 2-5.
31	Page 17, lines 21-24.
32	Page 10, lines 15-18.
33	Page 29, lines 17-19; at page 28, at lines 3-5 and lines 23-24; and page 25, lines 9-10.
34	Page 28, lines 3-5 and 23-24; and page 25, lines 9-10.
35	Page 25, lines 9-10 and page 28, line 4-5.
36	Page 25, lines 5-10, page 28 lines 3-5 and 23-24.
37	Page 29, lines 17-19.

### **Oath/Declaration**

The Examiner contends that the Oath or Declaration is defective under 37 C.F.R. 1.67(a) because it allegedly does not identify the application by serial number and filing date.

In response, Applications would like to draw the examiner’s attention to the fact that the executed Declaration filed on June 5, 2002, identified the present application by serial number and filing date (see page 1 of the Declaration, copy enclosed). It is respectfully submitted that the executed Declaration complies with these and all other requirements of 37 C.F.R. 1.67(a) (see page 1 of the enclosed Declaration).

**Claim Objection**

The objection to claim 5 is under 37 C.F.R. 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim, has been rendered moot by the cancellation of claim 5.

**Anticipation*****1. Dean***

Claim 1 has been rejected under 35 U.S.C. § 102 (b) as allegedly anticipated by U.S. Patent No. 4,532,142 to Dean et al (hereinafter “Dean”). Dean describes a coffee maker, which the Examiner asserts comprises all the elements of Claim 1 of this application.

Applicants respectfully traverses the rejection as follows. Dean does not teach or suggest “a liquid culture medium” as recited in Claim 1, but instead is limited to the use of water (see, e.g., col. 3, lines 21-41). By contrast, “liquid culture medium” as used in the Claims refers to a liquid with nutrients and minerals, as described in Table 1 on page 20 and Table 2 on page 22. Dean clearly envisions the use of plain, unenriched water. Furthermore, Dean does not teach an adjustment of the level of the liquid medium between an initial flooding condition and a lower or equal level of the medium with respect to the matrix, in a subsequent maturation step. Dean also teaches two separate but functionally related tanks or vessels (the coffee holding vessel and the vessel containing the drained liquid). In the present invention, the matrix and culture medium are contained within the same vessel.

***2. Birdwell***

Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as allegedly anticipated by U.S. Patent No. 5,409,834 to Birdwell et al (hereinafter “Birdwell”). Birdwell describes a method and apparatus for removing pollutants from polluted air.

Applicants respectfully disagree with the Examiner's reading of Birdwell. Birdwell does not teach spraying a liquid culture medium onto the biomass, but instead teaches spraying of liquid containing microbes into a stream of polluted air (see Birdwell column 4, lines 14-18). Further, Birdwell does not teach "gas control equipment for controlling the concentration of oxygen," but simply teaches a blower and exhaust conduit that provides air flow.

### **3. *O'Brien***

Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as allegedly anticipated by U.S. Patent No. 5,246,854 to O'Brien (hereinafter "O'Brien"). O'Brien describes a bioreactor for the growth and harvesting of filamentous fungi.

Applicant respectfully traverses the rejection as follows. O'Brien does not teach a level of liquid culture medium being equal or lower than the immobilization matrix, but a cylinder that "is partially submerged" (see O'Brien, column 2, line 42-45). Further, O'Brien does not teach or suggest a spray of liquid culture medium to irrigate existing biomass, but instead teaches a spray of liquid containing fungus used to inoculate the bioreactor (see O'Brien, column 5, line 12-14). Finally O'Brien does not teach an adjustment of the level of the liquid medium between an initial flooding condition and a lower or equal level of the medium with respect to the matrix, in a subsequent maturation step.

### **4. *Endo, Weathers '464, Weathers In Vitro, and Dilorio***

Claims 1 and 2 are also rejected under 35 U.S.C. 102(b) as being anticipated by each of the following references: U.S. Patent No. 5,043,283 to Endo et al (hereinafter "Endo"), U.S. Patent No. 4,857,464 to Weathers et al (hereinafter "Weathers '464"), and by journal publications by Weathers (hereinafter "Weathers In Vitro"), and Dilorio (hereinafter "Dilorio").

Applicants traverse these rejections as follows. Firstly, these documents ("Endo", "Weathers '464", "Weathers In Vitro", and "Dilorio" (also in the Weathers group)) teach horizontal filters designs and not a vertical configuration according to the present invention. Secondly, none of these documents teach an adjustment of the level of the liquid medium between an initial flooding







*that the plug be comprised of a particulate medium rather than a predominantly liquid medium”* (see Timmis, column 7, lines 40-43). Accordingly, there is no motivation to combine the method of Timmis with that of Weathers ‘928, because Timmis is non-analogous art. In addition, since neither Weathers ‘928 nor Timmis teaches or suggests an immobilization matrix of vertical configuration, the initial flooding condition and subsequent maturation step, the mass production of mature embryos etc, this hypothetical combination cannot correct the defects of each reference.

In view of the above and foregoing it is submitted that the rejection under 35 U.S.C. § 103 (a), as being unpatentable over Weathers '928 in view of Timmis, should be withdrawn.

## **Conclusions**

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

Dated: March 11, 2004

Respectfully submitted,

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Limited Recognition Under  
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